

# INTERNATIONAL SEARCH REPORT

Inter Application No  
PCT/GB2004/004535

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 F16K7/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 F16K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/158222 A1 (JOHNSON MICHAEL W ET AL) 31 October 2002 (2002-10-31)  abstract; figures 1-10	1,6-10, 14,15, 18-21
X	US 4 044 990 A (SUMMERFIELD FRANCIS) 30 August 1977 (1977-08-30) figures 1-11	1-3,6-9, 13,18,21
A	US 3 410 517 A (WALL THOMAS E) 12 November 1968 (1968-11-12) figures 1-5	1-21
A	US 3 488 824 A (BOTELER HENRY W) 13 January 1970 (1970-01-13) figures 1-9	1-21
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
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- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- \*&\* document member of the same patent family

Date of the actual completion of the international search

3 December 2004

Date of mailing of the international search report

13/12/2004

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 3 285 563 A (ROBERT CLARKSON JOHN) 15 November 1966 (1966-11-15) figures 1-3</p> <p>-----</p>	1-21

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2002158222	A1	31-10-2002	NONE	
US 4044990	A	30-08-1977	GB 1423821 A DE 2307035 A1 FR 2172328 A1 JP 48090021 A JP 57008341 B	04-02-1976 23-08-1973 28-09-1973 24-11-1973 16-02-1982
US 3410517	A	12-11-1968	NONE	
US 3488824	A	13-01-1970	NONE	
US 3285563	A	15-11-1966	NONE	